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10/530,480	10/06/2005	Shigeru Suzuki	270161US0PCT	5338
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER O HERN, BRENT T	
			ART UNIT 1772	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/530,480	Applicant(s) SUZUKI ET AL.	
	Examiner Brent T. O'Hern	Art Unit 1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 24-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/9/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims

1. Claims 1-29 are pending with claims 24-27 withdrawn.

WITHDRAWN REJECTIONS

2. The 35 U.S.C. 103(a) rejection of claims 1-20, 22-23 and 28-29 as being as being unpatentable over Matsui et al. (US 6,841,261) in view of Bradfute et al. (5,658,625) of record in the Office Action mailed 16 April 2007, page 2, paragraph 4 have been withdrawn due to Applicant's amendments and arguments in the Paper filed 9 July 2007.
3. The 35 U.S.C. 103(a) rejection of claim 21 as being as being unpatentable over Matsui et al. (US 6,841,261) in view of Bradfute et al. (5,658,625) and Teranishi et al. (6,184,289) of record in the Office Action mailed 16 April 2007, page 10, paragraph 5 has been withdrawn due to Applicant's arguments in the Paper filed 9 July 2007.

NEW REJECTIONS

Claim Rejections - 35 USC § 103

4. Claims 1-20, 22-23 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 6,841,261) in view of Lind et al. (US 6,074,715) with evidence of Shiraki et al. (US 4,386,125).

Regarding claims 1, 6-8, 13 and 14, Matsui ('261) teaches a heat shrinkable film comprising a resin composition (*See col. 1, ll. 6-23.*) comprising the following components (A) and (B) obtained by orientation at least in monoaxial direction (*See col. 2, ll. 56-60 and col. 5, ll. 22-44, oriented film with components (A) and (B).*),

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(A) 50 to 95 mass % of a block copolymer comprising an aromatic vinyl compound and a conjugated diene in a proportion of the aromatic vinyl compound of from 50 to 90 mass % (*See col. 8, l. 64 to col. 9, l. 45 wherein the block copolymer comprises an aromatic vinyl compound and a conjugated diene and wherein the conjugated diene with a weight percentage of 5 to 40% provides for said aromatic compound concentration.*), and

having a micro phase separation structure comprising a soft phase and a hard phase (*See col. 8, l. 64 to col. 10, l. 51 wherein the structure clearly has a microphase separation structure with soft/hard phase regions wherein the styrene regions correspond to the hard phase and the non-styrene regions correspond to the soft phase.*), and

(B) 5 to 50 mass % of a styrene type polymer, which a syndiotactic structure is a member thereof (*See col. 14, l. 32 to col. 15, l. 16 and col. 9, ll. 28-63 wherein (B) includes styrene type polymers as in (A), such as styrene, o-methylstyrene, p-methylstyrene, high-impact styrene or other styrene-type components, which can exhibit a syndiotactic structure, having the above concentration.*), however, fails to expressly disclose wherein the film has a heat shrinkage ratio at 80 °C for 10 seconds of at least 20% and wherein the styrene type polymer has a syndiotactic structure.

However, Matsui ('261) teaches wherein the heat shrinkage factor can be in excess of 20% at 80 °C for 30 seconds (*See col. 36, Table 1.*). Furthermore, see col. 7, l. 40 to col. 8, l. 1 of Shiraki et al. (US 4,386,125), as evidence, wherein the heat shrinkage factor is calculated by the cited equation:

$$\text{Heat shrinkage factor (\%)} = \frac{(l - l')}{l} * 100$$

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Furthermore, it is noted that for an initial length of 100 and a final length of 80, both the heat shrinkage ratio, per Applicant's equation on p. 59, lines 4-9, and the heat shrinkage factor, per the above equation are 20%. Thus, the Examiner interprets "heat shrinkage ratio" and the "heat shrinkage factor" to be equivalent. Furthermore, it is noted that Shiraki et al. (US 4,386,125) states that it is desirable for the heat shrinkage factor for heat shrinkable films to be at least 15% at 80 °C for the purpose of providing long-term thermal and mechanical resilient films (*See col. 7, l. 40 to col. 8, l. 1.*).

Therefore, Matsui's ('261) film obviously teaches a heat shrinkage ratio at 80 °C for 10 seconds of at least 20% in order to satisfy the mechanical performance of the applied film.

Furthermore, Lind ('715) teaches wherein the styrene-type polymer in the multilayer heat shrinkable film is syndiotactic polystyrene (*See col. 5, l. 58 to col. 6, l. 25.*) for the purpose of providing a styrene-type structure having a strong structure and narrow molecular weight distribution which provides for narrow crystalline and melting point ranges (*See col. 3, l. 44 to col. 4, l. 22 and col. 5, l. 58 to col. 6, l. 25.*).

Therefore, it would have been obvious to one having ordinary skill in the art to substitute a syndiotactic polystyrene for a styrene polymer of Lind ('715) in order to provide a strong heat shrinkable multilayered structure.

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The phrase **“(C) 0 to 45 mass % of a styrene type polymer different from the components (A) and (B)”** in claim 1, lines 10-11 is interpreted as not limiting since “(C)” can be 0%.

The phrases “wherein component (C) is present and comprises a styrene type polymer having a random copolymer block portion of an aromatic vinyl compound and a conjugated diene in its structure” in claim 6, lines 2-4; “wherein component (C) is present and comprises a rubber-modified polystyrene containing dispersed rubber particles having a volume average particle size of at most 2 μm ” in claim 7, lines 2-4; and “wherein component (C) is present and comprises a styrene type polymer having a random copolymer structure of styrene and a meth(acrylate) in its structure” in claim 8, lines 2-3 are interpreted as not limiting since “(C)” can be 0% per claim #1 and Applicant has not definitely defined and non-0% value for (C).

The phrase **“wherein no holes of 1 mm or larger are confirmed after the film is left at rest on a hot plate of 120 °C for 120 seconds so that the film and the hot plate are in contact with each other”** in claim 13, lines 2-3 are **process limitations** in a product claim and hence not given any patentable weight since patentability of a product does not depend on its method of production (*see MPEP § 2173.05(p)*).

Regarding claim 2, Matsui ('261) teaches a film wherein the block copolymer as the component (A) has a random copolymer block portion of the aromatic vinyl compound and the conjugated diene in its structure (*See col. 9, l. 28 to col. 10, l. 51 wherein a randomizing agent provides for said structure.*).

Regarding claim 3, Matsui ('261) teaches a film wherein the component (A) has the following characteristics:

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(1) the loss tangent ($\tan \delta$) has one or more maximum values within a temperature range of at least 65 °C and less than 100 °C in the dynamic viscoelasticity spectrum (See col. 3, ll. 19-31.),

(2) the highest value of the maximum values corresponding to (1) is within a range of at least 1.5 and less than 4.0 (See col. 3, ll. 32-37.),

(3) the loss tangent at a temperature lower by 10 °C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 40% of the highest maximum value (See col. 36, Table 1, wherein said values are provided for.),

(4) the loss tangent at a temperature lower by 30 °C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 10% of the highest maximum value (See col. 36, Table 1, wherein said values are provided for.), and

(5) the loss tangent at 30 °C is within a range of at least 0.01 and less than 0.4 (See col. 36, Table 1, wherein said values are provided for.).

Regarding claim 4, Matsui ('261) teaches a film wherein the resin composition constituting the heat shrinkable film has the following characteristics:

(1) the loss tangent ($\tan \delta$) has one or more maximum values within a temperature range of at least 65 °C and less than 100 °C in the dynamic viscoelasticity spectrum (See col. 3, ll. 19-31.),

(2) the highest value of the maximum values corresponding to (1) is within a range of at least 1.5 and less than 4.0 (See col. 3, ll. 32-37.),

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(3) the loss tangent at a temperature lower by 10 °C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 40% of the highest maximum value (*See col. 36, Table 1, wherein said values are provided for.*),

(4) the loss tangent at a temperature lower by 30 °C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 10% of the highest maximum value (*See col. 36, Table 1, wherein said values are provided for.*), and

(5) the loss tangent at 30 °C is within a range of at least 0.01 and less than 0.4 (*See col. 36, Table 1, wherein said values are provided for.*).

Regarding claim 5, Matsui ('261) and Lind ('715) teach the film discussed above, however, fail to expressly disclose a film having a spontaneous shrinkage ratio at 40 °C for 7 days of at most 5%.

However, Matsui ('261) teaches a spontaneous shrinkage factor, which is the same as spontaneous shrinkage ratio, is less than 2% for 30 days, thus, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention that said shrinkage factor would be less than 5% for 7 days in order to provide a film that has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50*).

Regarding claim 9, Matsui ('261) and Lind ('715) teach the styrene type polymer having a syndiotactic structure as the component (B) discussed above, however, fail to expressly disclose a crystalline melting point within a range of from 160 °C to 260 °C, and a crystalline melting energy of at least 1 J/g.

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However, it would have been obvious, through routine optimization, to a person having ordinary skill in the art at the time of Applicant's invention that Matsui's ('261) and Lind's ('715) structure with the same components would also be configured to have the same melting points and melting energy in order to provide a film that has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50*).

Regarding claim 10, Matsui ('261) and Lind ('715) teach the film discussed above, however, fail to expressly disclose a crystallinity of from 3 to 80% and a cold crystallization temperature of from 120 to 170 °C derived from the component (B).

However, it would have been obvious, through routine optimization, to a person having ordinary skill in the art at the time of Applicant's invention that Matsui's ('261) and/or Lind's ('715) structure with the same components would also be configured to have the same crystallinity and cold crystallization temperature in order to provide a film that has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50 of Matsui ('261)*).

Regarding claim 11, Matsui ('261) and Lind ('715) teach the film discussed above, however, fails to expressly disclose a film having an internal haze of at most 30%.

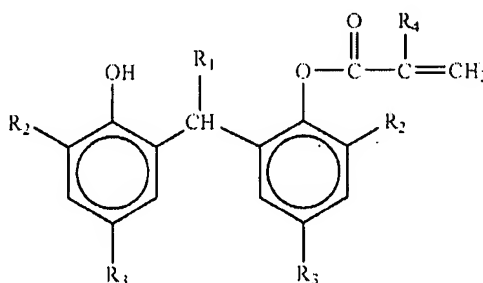
However, it would have been obvious, through routine optimization, to a person having ordinary skill in the art at the time of Applicant's invention that Matsui's ('261) structure with the same components would also be configured to have the same internal haze in order to provide a film that has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50*).

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Regarding claim 12, Matsui ('261) and Lind ('715) teach the film discussed above, however, fails to expressly disclose wherein the ratio of the relaxation stresses in the orientation direction of the film and in a direction at right angles therewith, is from 1.2 to 10.

However, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention, to provide for the above ratio through routine optimization, in order to provide a film that does not wrinkle when applied to the substrate and has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50.*).

Regarding claim 15, Matsui ('261) teaches the film discussed above, however, fails to expressly disclose wherein an acrylate type compound (D) represented by the following formula in an amount of from 0.1 to 3 parts by mass per 100 parts by mass of the total amount of the components (A), (B) and (C):



wherein R₁ represents hydrogen or a C₁₋₃ alkyl, each of R₂ and R₃ which are independent of each other, represents a C₁₋₉ alkyl, and R₄ represents hydrogen or methyl.

However, Matsui ('261) teaches a (meth)acrylate in the block copolymer composition with the above weight ratio (*See col. 5, ll. 35-44 and col. 14, ll. 45-55*) for the purpose of improving processability and low temperature orientation properties while

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providing for improved mechanical performance, thermal stability and visual aesthetics
(See *col. 1, ll. 6-23 and col. 14, ll. 63-65.*).

Therefore, it would have been obvious to use the above similar acrylate as taught by Matsui ('261) in order to provide a composite with improved processability, visual aesthetics, mechanical performance and low temperature orientation properties.

Regarding claim 16, Matsui ('261) teaches a film that contains a phosphorus type stabilizer (See *col. 16, ll. 23-36.*), however, fails to expressly disclose an amount of from 0.1 to 1 part by mass per 100 parts by mass of the total amount of the components (A), (B) and (C).

However, it would have been obvious, through routine optimization, to one having ordinary skill in the art to add from 0.1 to 1 part by mass stabilizer containing phosphorus per 100 parts by mass of the total amount of the components (A), (B) and (C) for the purpose of preserving the physical properties of the film (See *col. 16, ll. 17-26.*).

Regarding claim 17, Matsui ('261) teaches wherein the film contains a phenol type stabilizer (except the component (D)) (*col. 16, l. 30*), however, fails to expressly disclose an amount of from 0.1 to 1 part by mass per 100 parts by mass of the total amount of the components (A), (B) and (C).

However, it would have been obvious, through routine optimization, to one having ordinary skill in the art to add from 0.1 to 1 part by mass stabilizer containing phenol per 100 parts by mass of the total amount of the components (A), (B) and (C) for the purpose of preserving the physical properties of the film (*col. 16, ll. 17-26*).

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Regarding claim 18, Matsui ('261) teaches wherein the film is an expanded product (*See col. 2, ll. 56-60 wherein the orientation provides an expanded product.*).

Regarding claim 19, Matsui ('261) teaches a film having a multilayer structure, which has at least one layer of the heat shrinkable film (*See col. 2, l. 43-50.*).

Regarding claim 20, Matsui ('261) teaches the film discussed above, however, fails to expressly disclose wherein at least one of the outermost layers is made of a resin composition containing at least one copolymer selected from a styrene/butadiene block copolymer, a styrene/isoprene block copolymer and a styrene/meth(acrylate) type copolymer.

However, Matsui ('261) teaches wherein the film is a heat shrinkable multilayer film made of the above composition (*See col. 2, ll. 43-50 and col. 9, ll. 28-41.*), therefore it would have been obvious that the layer be in the outermost position in order to provide a film with satisfactory strength and shrinkability properties (*See col. 2, ll. 38-42.*) as taught by Matsui ('261).

Regarding claim 22, Matsui ('261) teaches wherein the film has a multilayer structure consists of three layers, the inner layer is the heat shrinkable film (*See col. 1, ll. 6-27 and col. 2, ll. 43-50.*), however, fails to expressly disclose wherein the proportion of the thickness of the three layers is 1 to 30:98 to 40:1 to 30 (the total is 100).

However, it would have been obvious, through routine optimization and design choice to select the above proportions in order to provide a structure that meets the desired strength and performance.

Regarding claim 23, Matsui ('261) teaches wherein the multilayer structure consists of two layers, one layer is the heat shrinkable film (*See col. 1, ll. 6-27 and col.*

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2, *ll.* 43-50.), however, fails to expressly disclose wherein the proportion of the thickness of the two layers is 5 to 95:95 to 5 (the total is 100).

However, it would have been obvious, through routine optimization and design choice to select the above proportions in order to provide a structure that meets the desired strength and performance.

Regarding claim 28, Matsui ('261) teaches a packaging label comprising the heat shrinkable film (*See col. 2, l. 9.*).

Regarding claim 29, Matsui ('261) teaches a container packaged with the heat shrinkable film (*See col. 2, l. 9.*).

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 6,841,261) in view of Lind et al. (US 6,074,715) with evidence of with evidence of Shiraki et al. (US 4,386,125) and Teranishi et al. (6,184,289).

Matsui ('261) and Lind ('289) teach the structure discussed above, however, fail to expressly disclose wherein at least one of the outermost layers contains a rubber-modified polystyrene containing dispersed rubber particles having a volume average particle size of at most 2 μm , in an amount of from 0.1 to 10 mass %.

However, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to use said high-impact styrene to reinforce the film without adversely affecting the transparency. Furthermore, it would it would have been obvious, through routine optimization that the quantities discussed above would not adversely affect the transparency (*See col. 1, ll. 6-27 and col. 2, ll. 43-50.*).

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Furthermore, see as evidence wherein Teranishi ('289) teaches rubber particles with the above dimensions and concentration for structures having optimal strength and transparency (*See col. 8, ll. 20-55.*).

Therefore, it would have been obvious, through routine optimization and design choice to select a rubber-modified polystyrene containing dispersed rubber particles for one of the outermost layers (*See col. 1, ll. 6-27 and col. 2, ll. 43-50.*) in order to provide a structure with optimal strength and transparency.

ANSWERS TO APPLICANT'S ARGUMENTS

6. In response to Applicant's argument (*p. 10, para. 5 to p. 11, para. 1 of Applicant's Paper filed 9 July 2007*) that Matsui ('261) does not disclose a heat shrinkage ratio, it is noted as discussed above as Matsui ('261) clearly does disclose a heat shrinkage ratio as "heat shrinkage ratio" and "heat shrink factor" are the same. A film having a 20% "heat shrinkage ratio" also has a 20% "heat shrink factor". If one were to follow Applicant's reasoning then Applicant would be making an admission against itself as Applicant would not disclose a heat shrinkage ratio or have support for said limitation. Furthermore, Applicant has not presented any precise evidence to support said position.

7. In response to Applicant's argument (*p. 12, paras. 3 to 5 of Applicant's Paper filed 9 July 2007*) regarding the teachings of Bradfute ('625), it is noted that Bradfute ('625) is no longer cited in the pending Office Action, thus, Applicant's arguments are moot. Furthermore, Matsui ('261) does not need the teachings of Bradfute ('625) as Matsui ('261) and Lind ('715) teach the cited limitations.

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8. In response to Applicant's argument (*p. 12, para. 5 of Applicant's Paper filed 9 July 2007*) regarding the teachings of Teranishi ('289), it is noted Applicant has not precisely presented any analysis regarding the teachings of Teranishi ('289).

9. In response to Applicant's arguments (*p. 11, para. 1 to p. 13, para. 1 of Applicant's Paper filed 9 July 2007*) regarding the teachings of Matsui ('261), it is firstly noted that the explanations of the precise teachings of Matsui ('261) are explained above and said explanations go into significantly greater detail than previously explained. Secondly, Applicant appears to have underappreciated the teachings of Matsui ('261) as none of Applicant's pending claims are patentable over the prior art of record.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brent T. O'Hern whose telephone number is (571) 272-0496. The examiner can normally be reached on M-Th, 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Brent T O'Hern
Examiner
Art Unit 1772
August 26, 2007



8/29/07
NASSER AHMAD
PRIMARY EXAMINER